

Abstract of the Disclosure

A method of producing a synthesis gas which contains hydrogen and carbon dioxide. A hydrocarbon mixture is pre-reformed to create a first mixture. The first mixture is then reformed in a catalytic ceramic membrane reactor (RCMC) with oxidizing an oxidizing mixture to form a raw synthesis gas. The oxidizing mixture contains oxygen, and the raw synthesis gas contains hydrogen, carbon monoxide, carbon dioxide, water, and an oxygen-depleted mixture. Several of the process streams are also preheated. The oxidizing mixture is brought to a temperature between 871 °C and 1300 °C prior to the formation of the raw synthesis gas.